

Application Serial No. 10/798,001  
In reply to Office Action of March 11, 2008

Docket: CU-3633

### Amendments to the Claims

The listing of claims presented below replaces all prior versions, and listings, of claims in the application.

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#### Listing of claims:

1-12 (canceled)

13. (currently amended) A substrate for bio-microarray, wherein comprises:

a substrate;

an anti-reflection layer is formed on the surface of the substrate; and

an immobilization layer for immobilizing a probe biomolecule formed in a pattern on the anti-reflection layer, wherein

the anti-reflection layer has a fine uneven structure comprising a fine particle of diameter in a range of 50 nm to 300nm, ~~an immobilization layer for immobilizing a probe biomolecule is formed in a pattern on the anti-reflection layer;~~ and further wherein a bulk refractive index of the fine particle is smaller than that of the substrate.

14. (currently amended) A substrate for bio-microarray, wherein comprises:

a substrate;

an anti-reflection layer ~~[[is]]~~ formed on the surface of the substrate; and

an immobilization layer for immobilizing a probe biomolecule formed in a pattern on the anti-reflection layer, wherein

the anti-reflection layer has a fine uneven structure with a depth in a range of 80 nm to 250nm, ~~an immobilization layer for immobilizing a probe biomolecule is formed in a pattern on the anti-reflection layer;~~ and further wherein a refractive index of the anti-reflection layer is smaller than that of the substrate thereon.

15. (currently amended) A substrate for bio-microarray, wherein comprises:

a substrate;

an anti-reflection layer is formed on the surface of the substrate; and

an immobilization layer for immobilizing a probe biomolecule formed in a pattern on the anti-reflection layer, wherein

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the anti-reflection layer has a fine porous structure; ~~an immobilization layer for immobilizing a probe biomolecule is formed in a pattern on the anti-reflection layer;~~ and further wherein a refractive index of the anti-reflection layer is smaller than that of the substrate.

16. (previously presented) The substrate of claim 13, further comprising a mark formed on the substrate for positional detection.
17. (previously presented) The substrate of claim 14, further comprising a mark formed on the substrate for positional detection.
18. (previously presented) The substrate of claim 15, further comprising a mark formed on the substrate for positional detection.
19. (previously presented) A bio-microarray, comprising the substrate of claim 13 and a probe biomolecule immobilized on the substrate.
20. (previously presented) A bio-microarray, comprising the substrate of claim 14 and a probe biomolecule immobilized on the substrate.
21. (previously presented) A bio-microarray, comprising the substrate of claim 15 and a probe biomolecule immobilized on the substrate.
22. (withdrawn) A bio-microarray device comprising:  
a substrate is selected from the group consisting of a metal, a semiconductor, a glass, a polymer material and admixtures thereof;  
an anti-reflection layer formed on the surface of the substrate wherein the anti-reflection layer comprising fine particles coated with a polymer resin material selected from the group consisting of meta-acrylic-based resins, styrene-based resins, cycloolefini-based resins, polyester resins, polycarbonate resins, polydiallyldimethylammonium resin, a crosslinked polyallylamine polyacrylic resin and admixtures thereof, wherein the anti-reflection layer has a fine uneven structure comprising a fine particle of diameter in a range of 50 nm to 300 nm; and

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an immobilization layer comprising a thin film of poly-L-lysine formed in a pattern for immobilizing a probe biomolecule thereon.

23. (withdrawn) The bio-microarray device of claim 22 wherein the fine particles are selected from the group consisting of inorganic material consisting of  $\text{MgF}_2$ ,  $\text{SiO}_2$ ,  $\text{AlF}_3$ ,  $\text{CaF}_2$ ,  $\text{LiF}$ ,  $\text{NaF}$ ,  $\text{ThF}_4$  and admixtures thereof.

24. (withdrawn) The bio-microarray device of claim 22 wherein the fine particles are selected from the group consisting of organic material consisting of crosslinked acrylic fin particles, uncrosslinked acrylic fine particles, crosslinked polystyrene fine particles, uncrosslinked polystyrene fine particles, monodisperse polymethyl methacrylate fine particles and admixtures thereof.

25. (withdrawn) The bio-microarray device of claim 22 wherein the anti-reflection layer is a laminate composed of alternating layers of polyallyamine and polyacrylic.